

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

**In re U.S. Patent Application of** )  
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**TACHIBANA et. al.** )  
 )  
**Application Number: To be Assigned** )  
 )  
**Filed: Concurrently Herewith** )  
 )  
**For: HEAT SPREADER AND SEMICONDUCTOR** )  
**DEVICE AND PACKAGE USING THE SAME** )  
 )  
**Attorney Docket No. KOBE.0057** )

**Honorable Assistant Commissioner  
for Patents  
Washington, D.C. 20231**

**INFORMATION DISCLOSURE STATEMENT**

Sir:

Pursuant to 37 C.F.R. §§ 1.56 and 1.97, this Information Disclosure Statement is submitted in the above-identified patent application. A listing of documents to be published on the face of any patent granted from this application is submitted herewith on Form PTO-1449. Any other documents or information submitted for consideration by the Examiner are listed in this paper. A copy of each U.S. and foreign patent, or each publication or portion thereof listed or herein identified, submitted herewith.

This Information Disclosure Statement is submitted with the initial filing of the application. Accordingly, no fee is due or payable at this time.

**CONCISE STATEMENT OF RELEVANCY**

The Examiner is respectfully advised that the Statement of Relevancy of "Japanese Patent JP-A-HE19-129793 (1997) and "Japanese Patent J-A-HEI10-275879 (1998) are attached hereto.

The Examiner is requested to acknowledge consideration of the information provided in this paper in accordance with prescribed procedures.

Please charge any additional fees or credit any overpayments in connection with this paper to Deposit Account No. 08-1480.

Respectfully submitted,

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November 6, 2003

Form PTO 1449  U.S. Department of Commerce Patent and Trademark Office  Information Disclosure Statement by Applicant	ATTY. DOCKET NUMBER <b>KOBE-0057</b>	SERIAL NUMBER <b>To be assigned</b>
	APPLICANT <b>TACHIBANA et al.</b>	
	FILING DATE <b>Concurrently herewith</b>	GROUP

## U.S. Patent Documents

Examiner Initial	DOCUMENT NUMBER	DATE	NAME	CLA SS	SUBC LASS	FILING DATE

## Foreign Patent Documents

Examiner Initial	DOCUMENT NUMBER	FILING DATE	COUNTRY	CLASS	SUB- CLA SS	TRANSLATION	
						YES	NO
	9-129793	10/27/1995	Japan				X
	10-275879	03/31/1997	Japan				X

## Other Documents (Including Author, Title, Date Pertinent Pages, Etc.)

EXAMINER	DATE CONSIDERED
<i>EXAMINER: Initial if citation is considered, whether or not citation is in conformance with MPEP 609; draw a line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant</i>	

PTO1449

Information Disclosure Statement  
Our Ref.:FP2787-001

Please prepare and file an Information Disclosure Statement in the USPTO at your earliest convenience, on the basis of the following Statement of Relevancy.

Statement of Relevancy

1. Japanese Pat. JP-A-HEI9-129793 (1997)

explained in the specification

**PROBLEM TO BE SOLVED:** To improve airtight property and sealing property and prevent warping and cracks, by covering both front and back sides of a unidirectional composite material made of carbon fibers arrayed in the direction of thickness with a metal member via a high-molecular adhesive layer.

**SOLUTION:** A bundle of carbon fibers arrayed in one direction is impregnated with phenol resin solution in which fine powder of solid pitch or the like is dispersed. While the solvent is removed by drying, a carbon material precursor is impregnated and a sheet-like material made of fibers arrayed in one direction is formed. A large number of the sheet-like materials are stacked in one direction and heated under pressure so as to cure the phenol resin portion. Then, both front and back sides of a flat plate 1 of a unidirectional carbon fiber composite material fired at a high temperature in an inert atmosphere are adhered with a metal member 2 via a high-molecular adhesive layer 3. Thus, airtight property and sealing property may be improved, and warping and cracks may be prevented.

2. Japanese Pat. JP-A-HEI10-275879 (1998)

explained in the specification

**PROBLEM TO BE SOLVED:** To increase the mounting reliability of a semiconductor chip and bonding reliability of a radiating fin and improve the electrical characteristics of a signal wiring, increase in wiring density and so on, in addition, reduce the manufacturing cost particularly in a semiconductor package, wherein a semiconductor chip of high power consumption and so on are mounted.

**SOLUTION:** A ceramic substrate 4, where a semiconductor chip is mounted, is bonded to one major surface (lower surface) 2a of a metallic support substrate 2. A resin wiring base material 10, including a wiring layer 9a is bonded and fixed at the side where the ceramic substrate 4, is bonded of the metallic support substrate 2. A semiconductor chip 5 is bonded to the ceramic substrate 4 and is supported by the metallic support substrate 2 via the ceramic substrate 4. The semiconductor chip 5 is electrically connected to the wiring layer 9a.